

(B) Course information in English

General course information:

Course title:	Reinforced Concrete Design II	Course code:	rk2902
Credits:	5	Work load (hours):	200
Course level:	Undergraduate <input checked="" type="checkbox"/>	Graduate	<input type="checkbox"/>
Course type:	Mandatory <input checked="" type="checkbox"/>	Selective	<input type="checkbox"/>
Course category:	Basic <input checked="" type="checkbox"/>	Orientation	<input type="checkbox"/>
Semester:	7 th	Hours per week:	4
Course objectives (capabilities pursued and learning results):			
Steel-concrete bond and anchorage details. Behavior and design of reinforced concrete structures under serviceability conditions. Ultimate strength design of R/C slabs (reinforcement details). Punching shear. Limit analysis of R/C beams- moment redistribution. Yield-line theory of R/C slabs. Design of joints - reinforcement details- brittle type failures. Frame joints. Shear walls.			
Prerequisites:			
1. Reinforced Concrete Design I 2. Structural Analysis II			

Instructor's data:

Name:	Lampros Koutas
Level:	Assistant Professor
Office:	
Tel. – email:	email: koutas@uth.gr
Other tutors:	-

Specific course information:

Week No.	Course contents	Hours	
		Course attendance	Preparation
1	Introduction and notation	4	4
2	Reinforced concrete technology aspects	4	4
3	Serviceability Limit State checks	4	4
4	Steel-concrete bond (nature, mechanism, strength)	4	4
5	Anchorage of steel reinforcing bars. Code specifications	4	4
6	Slabs (types, elastic analysis, one- and two-direction slabs, slab loads transferred to supporting beams).	4	4
7	Design of slabs - introduction	4	4
8	Design of slabs – one-way slabs	4	4
9	Design of slabs – two-way slabs	4	4
10	Design of slabs – asymmetrical plan dimensions	4	4
11	Approximate design methods (ultimate strength design under flexure) for rectangular R/C slabs under uniform surface load	4	3
12	Seismic design principles – the role of plastic hinges	4	3
13	Capacity design of columns – ductile failure modes	4	2
14	Shear walls confinement	4	2

Additional hours for:			
Class project	Examinations	Preparation for examinations	Educational visit
60	3	30	

Suggested literature:

1. Greek Code for the Design of Reinforced Concrete Structures (2000)
2. Eurocode 2: Part 1-1 (EN1992-1-1)
3. Eurocode 8 part 1 (EN1998-1)
4. Greek Code for Seismic Design
5. Class notes for RC II
6. Nilson, A., "Design of Reinforced Concrete Structures"
7. Fardis M., "A course on Reinforced Concrete"
8. Penelis/Stylianidis/Kappos/Ignatakis, «Reinforced Concrete Structures»
9. Reinforced Concrete Structures (Park & Paulay, ed. Wiley)
10. Designers' Guide to EN 1998-1 and EN 1998-5, M.N.Fardis, E. Carvalho, A. Elnashai, E. Faccioli, P. Pinto, A. Plumier, Thomas Telford.

Teaching method (select and describe if necessary - weight):

Teaching	<input checked="" type="checkbox"/>	78%
Seminars	<input type="checkbox"/>	-
Demonstrations	<input type="checkbox"/>	-
Laboratory	<input type="checkbox"/>	
Exercises	<input checked="" type="checkbox"/>	20%
Visits at facilities	<input checked="" type="checkbox"/>	2%
Other (describe):	<input type="checkbox"/>	-
Total		100%

Evaluation method (select)- weight:

	<u>written</u>	<u>%</u>	<u>Oral</u>	<u>%</u>
Homework	<input type="checkbox"/>		<input type="checkbox"/>	
Class project	<input checked="" type="checkbox"/>	20	<input checked="" type="checkbox"/>	
Interim examination	<input type="checkbox"/>		<input type="checkbox"/>	
Final examinations	<input checked="" type="checkbox"/>	80	<input type="checkbox"/>	
Other (describe):	<input type="checkbox"/>		<input type="checkbox"/>	